

John Don't Fuels Reduction and Forest Health Project

Proposed Action

To move stands toward the Desired Future Condition for the land allocation described in the 2004 Sierra Nevada Forest Plan Amendment (SNFPA), the Proposed Action includes a combination of fuels reduction, forest health improvement, transportation system improvement, and watershed improvement actions.

Table 1 Proposed Treatment Units

Unit	Acres	Initial Treatment	Associated treatments	Follow-up treatments
507-1	23	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
507-17	23	commercial thin - GTR	brush cut	burn
507-37	61	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
507-50	54	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
507-51	47	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
507-52	20	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
507-901	2	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
509-37	2	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
509-64	9	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
509-65	13	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
509-65	2	hand thin / pile	pile burn	
510-41	66	commercial thin - GTR	Non-commercial thin / masticate	
510-42	81	commercial thin - GTR	Non-commercial thin / masticate	
511-1	6	commercial thin - GTR	Non-commercial thin / masticate	
511-10	12	commercial thin - GTR	Non-commercial thin / masticate	
511-2	32	commercial thin - GTR	Non-commercial thin / masticate	
511-3	43	commercial thin - GTR	Non-commercial thin / masticate	
511-4	27	commercial thin - GTR	Non-commercial thin / masticate	
511-5	55	commercial thin - GTR	Non-commercial thin / masticate	
511-6	38	commercial thin - GTR	Non-commercial thin / masticate	
511-7	22	commercial thin - GTR	Non-commercial thin / masticate	
511-8	25	commercial thin - GTR	Non-commercial thin / masticate	
511-9	19	commercial thin - GTR	Non-commercial thin / masticate	
512-24	4	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-67	33	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-67	4	commercial thin -GTR for restoration use	Rehab of non-system routes	
512-67	13	Burn only	Hand thinning and line construction	burn
512-83	5	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-84	6	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-85	57	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn

Unit	Acres	Initial Treatment	Associated treatments	Follow-up treatments
512-86	11	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-87	2	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-88	28	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
512-89	7	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
518-33	7	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
518-34	52	commercial thin - GTR	Non-commercial thin / brush cut / pile	burn
518-15	16	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
518-17	39	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
518-18	98	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
518-35	37	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
518-36	10	commercial thin - red fir for restoration use		
518-5	3	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
518-7	8	commercial thin - red fir	Non-commercial thin / brush cut / pile	mistletoe removal pruning on advanced regeneration
M1	9	masticate		
M2	40	masticate		
M3	73	masticate		
M4	39	masticate		
M5	10	masticate		
M6	33	masticate		
M7	51	masticate	herbicide	
M8	26	masticate	herbicide	
M9	12	masticate	herbicide	
M10	34	Thin	masticate/herbicide	burn
Union Valley Area	3483	Burn only	Hand thinning and line construction	burn

Ground Based Whole Tree Thinning

Variable density thinning of commercial and non-commercial trees, based on concepts in North et. al (2009) and North (2012) is proposed to reduce potential for high severity fire and to improve species composition and health of residual trees on approximately 905 acres of mixed conifer forest stands and in pine plantations. Removal of trees $\geq 30''$ dbh would not occur, except to allow for equipment operability or safety in these units.

Variable density thinning with removal of some overstory trees to release advanced red fir regeneration from mistletoe infestations is proposed on 210 acres of stands that are red fir or a combination of red fir and mixed conifer. Red fir trees with mistletoe infestation that are above and/or adjacent to pockets of

advanced red fir regeneration would be removed regardless of diameter. In these stands no more than 20% of the total unit area would have harvest to release advanced regeneration. Residual, advanced regeneration would be sanitized through removal of heavily infected trees taller than three feet and the pruning of lightly infected trees beneath mistletoe infected overstory trees.

- In order to improve individual tree vigor and to reduce the deterioration of suitable wildlife habitat for a range of species, areas of these red fir stands identified as having a moderate mistletoe infection would be thinned to reduce inter-tree competition. Jeffery and sugar pine, where present in these stands would also be favored for release through thinning. Thinning would remove suppressed, intermediate and occasionally codominant or dominant trees less than 30 inches dbh, except where removal of larger trees are needed for operability. Trees in the dominant canopy position with the heaviest mistletoe infection (described by Hawksworth ratings of 5 and 6) would also be removed.

Unit specific prescriptions would provide for within stand diversity, improvement and protection of wildlife habitat, tree vigor improvement, protection and restoration of hydrologic features, protection of soil resources, and desired species composition.

- Variable density prescriptions in stands proposed for thinning would retain trees where identified wildlife structures such as cavities or platforms are present, and would retain some mid-story trees to provide cover in denser canopy areas.
- In non-plantation stands, healthy ponderosa, Jeffrey, and sugar pine, oaks, and large residual cedar trees would be cleared around to promote their growth and survival by removing the smaller, encroaching fir, cedar, and unhealthy pine. White fir trees would be removed if they are present as dominant or co-dominant trees over healthy pine or oak if the understory would be expected to release. The marking prescriptions would emphasize keeping a species mix.
- Ponderosa, Jeffrey, and sugar pine regeneration would be encouraged where pine seed sources exist.
- Riparian vegetation would be encouraged where compatible with other riparian conservation objectives.

In addition to thinning of ladder fuels described above, existing and operation generated slash and small trees and brush would be tractor piled, masticated, and/or burned after harvest operations. Mastication or tractor piling and prescribed burning of thinned units would occur shortly after the thinning is completed. Post-harvest machine piling and burning of existing and operations slash would occur as necessary to reduce surface fuels in preparation for the reintroduction of prescribed fire. Mastication may be substituted for tractor piling where surface fuels can be more effectively treated by this method. Biomass

accumulated on landings could be disposed of in a number of ways, including on-site burning, commercial and personal use firewood, or as co-generation fuel if a market is available for the material.

Mastication

Non-commercial plantations would be thinned and brush would be treated with a masticator leaving the best 110-140 trees per acre on 124 acres of less than 20 year old plantation. Follow-up herbicide to maintain brush cover below 30% is proposed on these acres.

Mastication of 205 acres of brushfield is proposed to increase soil cover and to modify fire behavior through fuel rearrangement.

Herbicide

Herbicides are proposed for targeted plant control using ground based application with a directed low-pressure spray. Mastication of 124 acres of plantations with resprouting brush species would have follow-up herbicide application if brush cover returns at greater than 30% cover of the area following initial treatment.

- Backpack sprayers would be used to apply spray in sweeping motions. With the method proposed, the herbicide is released through a handheld wand with a trigger that is controlled by the applicator. The spray would be applied directly to targeted plants and spraying would be stopped when moving between plants.
- A low nozzle pressure (15 psi) that produces a relatively large droplet would be required. A pressure gauge or a pressure regulator would be required on backpack sprayers. Prior to the start of application, all spray equipment would be calibrated to insure accuracy of delivered amounts of pesticide. Periodically during application, equipment would be rechecked for calibration.
- Additives in the form of colorants and adjuvants would be added to the herbicide mixtures. A colorant would be added to assist in the inspection process to determine the location of coverage. An adjuvant or surfactant would be used to help the herbicide mixture be absorbed into the plant.

Table 2 Chemical Formulation, Application Rate, and Additives

Herbicide	Trade Names	Target Species	Timing	Proposed Application Rate
Glyphosate	Rodeo or equivalent	green leaf manzanita, choke cherry, whitethorn, huckleberry oak	when target plants are actively growing	2 to 4 lb. a.e./acre
Adjuvant		Trade Names		
Spreader-Penetrator		Syl-Tac, Hasten or Competitor (aquatic formulation)		
Marker Dye		Hilight Blue or Colorfast Purple		

Hand Thinning, Piling and Prescribed Burning

Hand thinning and hand piling is proposed on 2 acres of a sensitive site, with piles to be burned outside of the site perimeter.

Pile burning and underburning are the two primary uses of prescribed fire proposed in this project.

Prescribed burning is proposed as a follow-up treatment in thinned and tractor piled units and is proposed as the initial treatment or primary treatment for this project on 2,813 acres of Forest System land¹ where land allocations, environmental constraints, or stand conditions make prescribed fire the preferred tool to achieve treatment objectives.

- All proposed fire treatment areas would be ignited using ground based firing techniques.
- Within burn only treatment units hand thinning and piling of material up to 6 inches in diameter may occur in preparation for prescribed fire implementation.
- Within thinning and piling units, underburning may be implemented concurrent with pile burning or separately.
- Burning would be expected to result in some mixed severity fire, but would be limited to individual tree to small pockets of torching
- Treatments proposed for initial prescribed burn treatments may have follow-up prescribed fire treatments to achieve objectives for reduced surface and ladder fuels. These follow-up treatments would occur typically in 5 to 7 year intervals after initial treatment.

In preparation for prescribed fire, perimeter line construction would be needed where roads, trails, or natural barriers are absent. This may involve hand cutting of vegetation including trees up to 6-inch diameter, pruning, and scraping a bare soil line, or line construction with a D-6 or smaller dozer.

- Dozer lines would be placed in mechanical treatment units where tractor operation is not restricted and along existing roads up to 35% slope
- Handlines would be placed on slopes greater than 35% and where existing roads or trails are not available for fire control lines.

Transportation and Dispersed Use Management

Transportation management with the project would be applied consistent with the Eldorado National Forest Public Wheeled Motorized Travel Management Final Environmental Impact Statement (FEIS) (2008). Roads that are not open to the public would be blocked after use with barriers.

¹ 683 acres additional acres of private land inholdings within the proposed burn perimeter

Table 3 Proposed Road Work Activities

Road_ID	Length (Miles)	Activity	Transportation System Status
11N26E	0.3	Reconstruction	Open to Public High Clearance Vehicles
11N27	0.4	Reconstruction for project use	Open to Public High Clearance Vehicles
11N27	0.3	Reconstruction for project use and Reroute of current segment	Will replace current road segment (MVUM Route)
11N27	0.3	Decommission	Open to Public High Clearance Vehicles
11N37B	0.8	Reconstruction	Open to Public High Clearance Vehicles
11N37F	0.8	Reconstruction	Open to Public High Clearance Vehicles
11NY27A	0.5	Reconstruction for project use	Open to Public High Clearance Vehicles
11N727A	0.2	Abandon / Rehab segment	Open to Public High Clearance Vehicles
11NY27AN	0.1	New Construction for reroute	Administrative Use Only
12N25	1.1	Reconstruction for project use	Open to Public High Clearance Vehicles
12N25	0.6	Reconstruction	Open to Public High Clearance Vehicles
12N25A	1	Reconstruction for project use	Administrative Use Only
12N25A Spur	0.4	Reconstruction for project use	Non-System (NS) – Switch to Administrative Use only
12N25B	1.1	Reconstruction for project use	Open to Public High Clearance Vehicles
12N25B	1.4	Reconstruction	Open to Public High Clearance Vehicles
12N25B Spur	0.2	Reconstruction for project use	Non-System – Switch to Administrative Use only
12N25C	0.5	Reconstruction	Open to Public High Clearance Vehicles
12N25E	0.4	Reconstruction for project use	Administrative Use Only
12N40	0.6	Reconstruction	Open to Public High Clearance Vehicles
12N40	0.2	Reconstruction	Open to Public High Clearance Vehicles
12N77	<0.1	Crossing improvement	Administrative Use Only
12N99C	0.2	Block / Abandon	Non-System
12N99C	0.3	Reconstruction	Open to Public High Clearance Vehicles
13N24A	0.2	Abandon/Rehab	Open to Public High Clearance Vehicles

Road_ID	Length (Miles)	Activity	Transportation System Status
13N28F	0.5	Reconstruction for project use	Administrative Use Only
13N39	0.4	Reconstruction for project use	Open to Public High Clearance Vehicles
14N26	0.6	Reconstruction for project use	Open to Public High Clearance Vehicles
14N26	0.4	Reconstruction for project use	Administrative Use Only
14N52	0.7	Abandon/Rehab	Non-System
17NY12K	0.4	Reconstruction	Open to Public High Clearance Vehicles
A	0.5	Abandon / Rehab	Non-System
B	0.9	Abandon / Rehab	Non-System
bassi A	0.3	Temporary Road	Temp
bassi B	0.3	Temporary Road	Temp
bassi C	0.1	Temporary Road	Temp
C	0.1	Abandon / Rehab	Non-System
E	0	Abandon / Rehab	Non-System
H	0.2	Abandon / Rehab	Non-System
NS-12N25	0.1	Abandon / Rehab	Non-System
NS-12N25B	0.1	Abandon / Rehab	Non-System
NS-12N40	0.2	Abandon / Rehab	Non-System
NS-12N402	0	Abandon / Rehab	Non-System
NS-12N40A	0.4	Abandon/Rehab	Non-System
NS2-12N25B	0.2	Abandon/Rehab	Non-System
NS3-12N25B	0.2	Abandon/Rehab	Non-System
Francis 1	0.1	Abandon/Rehab	Non-System
Francis 2	0.3	Abandon/Rehab	Non-System
Francis 3	0.1	Abandon/Rehab	Non-System
recon A	0.7	Reconstruction for project use	Non-System
recon B	1.8	Reconstruction for project use	Non-System
recon C	0.3	Reconstruction for project use	Non-System
recon D	0.1	Reconstruction for project use	Non-System
recon E	0.8	Reconstruction for project use	Non-System

Road reconstruction to facilitate treatments and to improve water quality through application of Best Management Practices (BMPs) is proposed on approximately 11 miles of road. Road reconstruction is

also proposed on 6 miles of National Forest System Roads open to the public that are not associated with project use.

- Reconstruction activities include: road rocking of specific segments, replacement of inadequate drainage crossings, cutting or trimming of trees and brush for sight distance improvement, elimination of ruts, gate or barrier installation to control seasonal use or replacement of existing, non-functional gates or barriers, ditch repair, and installation of waterbars and dips on roads with inadequate runoff control.
- As part of reconstruction activities the following specific actions would occur:
 - Road 11N37B would have aggregate base placed on the road near the creek in sections 33 and 34, T12N R15E.
 - A culvert on the 11N37F road in section 6 would be replaced and armored at the inlet and outlet of the culvert in T12N R16E.
 - An undersized culvert on 12N25 in section 4 would be replaced with an appropriately sized culvert T11N R15E.
 - A stream inlet and outlet, a lead off ditch, and two inboard ditches on the 12N25B road would be armored in section 11, T11N R15E.
 - The spur road accessing unit 318-35 in section 10, T11N R15E from the 12N25B road would have an undersized culvert replaced with partially buried, appropriately sized culvert.
 - A wet area on road 12N25E in section 4, T11N R15E would be reconstructed using geoweb material and aggregate base.
 - A wet crossing on the 12N77 road in section 20, T12N R14E would be reconstructed to allow for log truck passage
 - Two culverts on the 17NY12K road in section, 34 T13N R14E would be relocated to the appropriate location on the road to provide for water drainage.
 - A low water crossing on 12N77 would be constructed for project use.

Road construction of <1 mile is proposed to facilitate silviculture and fuels reduction treatments. Most of the proposed reconstruction is for temporary roads that would be closed after use. However, in order to avoid using 0.2 miles of road 11NY27A, 0.1 miles of new construction is proposed to reroute the existing road. As part of this construction a crossing on 11NY27A using a combination of geoweb material and aggregate base is proposed. The new segment would be used for administrative uses only.

Decommissioning of 0.7 miles of system roads that have naturally stabilized is proposed, including approximately 0.3 miles of route 11NY27. Approximately 0.2 miles of route 12N25 would be decommissioned from the point where current system use ends to Lower Silver Creek where unauthorized use has led to resource damage, and 0.2 miles of 13N24A past a dispersed use site at the head of the road.

Abandonment and obliteration of 4.3 miles of non-system road and 0.4 miles of system road would be accomplished using a combination of ripping, waterbarring, culvert removal, and covering with vegetation. This includes decommissioning 0.2 miles of 11N27 and 0.2 miles of 13N24A.

Where the 11N37 road crosses Silver Creek in section 33, T12N R15E boulders would be placed along the roadside to prevent vehicle travel from leaving the Forest System Road.

A culvert on the 12N40 road above the fen in section 32 T12N R15E would be pulled and the crossing would be rocked with an aggregate base to allow for waterflow.

On the 11N37G road, 2 culvert outlets in sections 6 and 7, T11N R16E would be armored with rock.

Access to 2 dispersed recreation sites in in section 10, T11N R15E near unit 518-36 would be controlled to reduce resource damage by blocking non-system routes with boulders and trees removed from unit 318-36, and restoring water infiltration by ripping, waterbarring and seeding. A dispersed recreation parking area would be rocked on the 12N25 road above Lower Silver Creek to facilitate continued dispersed use of the area.

A non-system road accessing a dispersed site in section 4, T11N R15E in unit 512-89 would be blocked and rehabbed.

Parking for a dispersed recreation area in section 11, T13N R14E would be defined with boulders and /or trees to prevent vehicle travel into wetlands adjacent to the dispersed use site

Stream, Meadow, and Fen Work

Wilson Meadow Restoration Sections 6 and 7 T11N R16E

- A series of culverts along the 11N37 road would be installed to disperse flood flows entering the meadow.
- Construction of in-stream structures using a combination of soil, logs and rocks along the main stream in the meadow to disperse stream flow from the main channel where down-cutting continues to occur, onto the meadow surface and into side channels is proposed to restore seasonal ground water characteristics and water storage in the meadow.
- Cutting of some lodgepole in pockets of the meadow is proposed to reduce drying from tree ingrowth; trees could be used in channel restoration activities.

Felling of 50% of standing live conifer trees in a clumped distribution within the meadow between units 518-17 and 518-18 in section 2, T11N R15E to increase logs and wildlife habitat value of the meadows.

Section 3, T11N R15E a “nick point” in the stream leaving Florida Fen Meadow would be stabilized using a combination of rock and woody material.

Landing Rehab

Existing landings and skid roads that are not identified for reuse, but that have been identified as impairing the hydrologic function would be repaired through contour ripping and waterbarring at the following locations:

- 2 landings in section 3, T11N R15E off 12N25B
- Section 10, T11N R15E on 12N25B
- Section 10, T11N R15E on 12N25B
- Section 32, T12N R15E on NS-12N40-2
- Section 7, T11N R16E on 11N37G

Project Specific Design Criteria

In meeting the purpose and need for this project, site-specific standards and guidelines for fuels treatment and resource protection would be adhered to during project implementation. Standards and guidelines are described in the Eldorado National Forest Land and Resource Management Plan (LRMP) and in the 2004 SNFPA.

In addition, there are other applicable, standard policies and guidelines included in various Forest Service Handbooks; laws and regulations; and “Best Management Practices” (BMPs) as defined by the State of California for water quality protection.

Mechanical Operations

- 1) Tractor piling would be precluded on slopes greater than approximately 35% and from sensitive areas, such as archaeological sites, sensitive plant zones and stream buffer zones or inner-gorge areas.
- 2) Hardwoods greater than 4 inches diameter would be retained except where removal is needed for equipment operability.
- 3) Boulders and trees would be placed to discourage non-system travel in units 309-64 and 309-65 during harvest activities
- 4) Ripping with shanks is proposed to alleviate soil compaction and erosion problems, restore infiltration, and discourage unauthorized OHV use as part of the abandonment and restoration activities for roads and trails.
 - The shanks would be lifted where substantial root and bole damage to larger trees would occur.

- Ripping would not occur on shallow soils where the displacement of rocks disrupts soil horizons or where there are concerns about the spread of root disease, or damage to tree roots.
- Water-barring would occur following ripping.

Piling

- 1) Burn piles would be placed away from the boles of residual trees to reduce damage to residual trees. Where pile burning results in mortality in excess of Forest Plan standards, salvage of dead and dying trees would be permitted in order to promote minimized, landing size.
- 2) Hand piles would be placed outside of prescribed fire ignition exclusion zones or a minimum of 25 feet from any stream channel, whichever is greater.

Prescribed fire

- 1) The 17NY12K road would be reconstructed prior to prescribe burning activities in that area.
- 2) Raking around individual legacy ponderosa pines (large pines with orange, smooth bark) and legacy sugar pine, typically 24" or greater, with more than 4" duff accumulation or with pre-existing fire scars would occur in stands prior to broadcast or underburning if the area is to be burned when duff is dry in order to reduce potential for loss of residual trees. Stands may be burned without raking when duff is saturated.
 - Raked trees would have accumulated duff and litter removed within 2 feet of the tree bole. Raked material would be spread out beyond 2 feet from the tree bole so that mounds are not created. Trees with fire scars would be raked to bare mineral soil. Other raked trees would have no more than 2 to 3 inches of duff remaining.
 - The timing of the raking would be preferably performed to allow for at least one growing season after raking permitting fine roots to recover prior to burning. At a minimum raking would be performed at least 60 days before prescribed fire implementation to allow for fine root recovery and reduce damage potential for residual trees.
- 3) Upon completion of burning, the visible character of the firelines would be disguised by spreading pine needles, brush, etc. where they intersect roads or trails in order to reduce the likelihood of the firelines becoming unwanted trails.

Snags, down logs and hazard trees

- 1) Standing dead trees (snags) over 16 inches in dbh that do not present a hazard for woods worker and public safety would be retained.

- 2) Hazard trees within the Riparian Conservation Area (RCA) would be felled toward the stream and left in place to provide for additional down wood in riparian areas, provided the retained down trees do not impede culvert function.
- 3) Down logs greater than 16 inches in diameter within treatment units would be avoided where possible during mechanical operations, and would not be directly lit during firing operations to provide for down woody material.
- 4) The removal of dead and unstable live trees (hazard trees) of all sizes would occur along utility lines, timber haul roads and landings for woods worker and public safety throughout project implementation except where RCA restrictions for removal apply. Hazard trees within spotted owl or goshawk PACs would be felled and left on-site unless reviewed by a wildlife biologist.
- 5) Within units 512-89 and 518-36 dying lodgepole would be retained where they do not present an operational or safety concern, to produce additional snags due to low snag density in surrounding plantations.

Botany

- 1) Threatened, Endangered, Sensitive, and Watchlist plant occurrences would be flagged for avoidance prior to implementation for all activities other than those specifically identified and analyzed. Threatened, Endangered, Sensitive, and Watchlist plant occurrences discovered during project implementation would be flagged for avoidance where required.
- 2) Prior to prescribed burn implementation, known occurrences of Threatened, Endangered, Sensitive, or Watchlist plant taxa in burn units would be re-flagged. Re-flagging occurrences would clarify occurrence boundaries and ensure that fire lines are not cut through occurrences.
- 3) Where additional handline construction is identified as needed for implementation, potential habitat within burn units would either be treated as occupied or evaluated prior to construction activities.
- 4) Herbicide would not be applied within the exclusion buffers for sensitive plants to minimize potential for negative effects from drift or misapplication.

Invasive plants

- 1) Occurrences of high priority invasive plant species would be treated by hand pulling, if feasible, (spring-summer before seed formation), lopping at the appropriate time, or with herbicide treatment, determined by the target species' biology prior to mechanical or prescribed fire activities. If occurrences of high priority invasive plant species cannot be feasibly treated prior to implementation,

populations would be flagged prior to project implementation and avoided by vehicles and equipment where occurrences are isolated.

- 2) All off-road equipment would be cleaned to insure it is free of soil, seeds, vegetative matter or other debris before entering National Forest System lands to prevent the introduction or spread of invasive plants. Prior to the start of operations, the Forest Service would do a visual inspection for such debris. Equipment would be cleaned prior to moving from a weed- infested unit to a weed-free unit.
- 3) All gravel, fill or other materials would to be weed free. Onsite sand, gravel, rock, or organic matter would be used where possible.
- 4) Straw or mulch used for erosion control would be certified weed-free. A certificate from the county of origin stating the material was inspected is required. On-site material also may be used if it comes from a weed-free area.
- 5) Any seed used for erosion control or restoration would be from a locally collected source (ENF Seed, Mulch and Fertilizer Prescription, March 21, 2000). Plant taxa proposed for re-vegetation would be approved by the project botanist.

RCA

- 1) Vegetation removal and equipment exclusion buffers would be followed as established in the project specific RCO analysis. Equipment use within RCAs would be restricted by the equipment exclusion zones. Mechanical equipment would remain outside the exclusion buffers flagged on the ground and analyzed by the ID team.
 - A landing for unit 512-67 on 11N37D and 2 landings in 518-17 on 11N27YA that are in the RCA would be ripped after use. No new landings are proposed for construction in the RCA.
- 2) Prescribed fire ignition, piling, and hand line construction would occur outside of the exclusion zones. Fire would be allowed to back into the exclusion zone unless otherwise established in the project specific RCO analysis.

- 3) Pesticide use exclusion buffers would be followed as established in the project specific RCO analysis.

Roads and Trails

- 1) Designated trails would be protected during project activities.
 - The road identified as Recon C and proposed for reconstruction with this project would be restored to use for hiking trail after mechanical operations in unit 510-42.
- 2) Two non-system roads in unit 512-83 would be blocked during harvest activities.

- 3) In addition to the seasonal closure identified by the Wheeled Motorized Travel Management Final Environmental Impact Statement (FEIS) (2008) roads identified as open for public use may be temporarily closed during inclement weather to protect reconstruction investments until those roads have stabilized. A Forest Order would be issued.
- 4) New drainage structures and those replaced through project reconstruction activities would be designed for 100-year storm events and to provide fish passage as necessary.
- 5) Easements or Road Use Permits would be obtained before timber haul or reconstruction is initiated in units accessed from identified: haul roads on which easements are not currently held. In order to obtain rights of way, reciprocal agreements may be negotiated with private landowners.
- 6) Water would be used to abate dust from logging traffic using water drafting sites that have suitable stream flow and access. When water is scarce, alternative products such as chlorite, sulfonate or other dust abatement materials may be used.
 - Existing waterholes and other sites such as ponds, lakes, or streams, used for water drafting would be inspected for existing amphibians and flow levels prior to use. Maximum drawdown volumes would be estimated prior to using draft sites. Minimum pool levels during drafting would be maintained. Drafting sites would be constructed so that oil, diesel fuel, or other spilled pollutants would not enter the stream. Stream bank stability would be maintained and sedimentation minimized by constructing and maintaining back down ramps using rocking, chipping, mulching, or other effective methods. A Forest Service approved screen covered drafting box, or other device to create a low entry velocity, would be used while drafting to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats.

Wildlife

- 1) A limited operating period (LOP), prohibiting activities (except road use, reconstruction and maintenance) would be implemented within ¼ mile radii from nesting sites unless surveys confirm that the species is (are) not nesting to avoid disturbance of nesting pairs:
 - February 15th through September 15th for Northern Goshawk
 - March 1st through August 15th for California Spotted owl

An LOP may be waived for early season prescribed fire. Based on nesting status, additional mitigation, such as exclusion of portions of the proposed burn/PAC, additional fire lines and different lighting techniques may be implemented to reduce potential effects to nesting spotted owls and goshawks.

Soils

- 1) Equipment use in shallow soils would generally be avoided where practicable.
- 2) To control surface erosion, activities would maintain a minimum of 50% soil cover following mechanical treatments in soils with a low erosion hazard rating and a minimum soil cover of 70% in units with potentially moderate or higher erosion risk. Following prescribed burning operations average soil cover for each treated unit would be maintained at 70% or greater one year following burning activities.
- 3) Activities would not increase unacceptable soil conditions above 15 percent in the activity area.
- 4) If excess soil displacement occurs during mechanical operations, skid trails would be re-contoured where possible and covered with slash or other organic material to a minimum of 70 percent cover at the conclusion of thinning activities.

Cultural Resources

Standard procedures for protecting cultural resources at risk will be followed when activities are located immediately adjacent to cultural resources (Regional PA 2013, Appendix E). The specific protection measures for cultural resources highlighted in the Cultural Resource Report for the project would be followed during all phases of the project.

- 1) All cultural resource sites in and near treatment units or in proximity to activity areas such as road reconstruction and maintenance work would be flagged or re-flagged for avoidance from ground-disturbing activities prior to project operations so that they can be identified and protected during project activities.
- 2) Prior to prescribed burn implementation known cultural resource sites would be reflagged. Any additional handline placement for the prescribed understory burning associated with this project would be coordinated with the District Archeologist.
- 3) Timber harvest adjacent to site boundaries would be conducted as to directionally fell trees away from flagged sites.
- 4) Mechanized equipment would be excluded from site boundaries, except areas where removal of woody material is specifically approved by the District Archeologist to prevent or minimize effects to archeological resources. With the clearance of the District Archeologist, vegetation within site may be cut by hand and piled outside of the flagged boundaries.

- 5) Burn piles would be placed away from sites or other cultural resource features, at a distance far enough so as not to adversely affect site features.
- 6) Hazard tree removal on or in the vicinity of archaeological sites would be coordinated with the District Archeologist, and would follow the guidelines for hazard tree removal included in the programmatic agreement.
- 7) Any equipment moving from one treatment unit or road system to another by driving cross-country would not be driven across archaeological sites.
- 8) Low intensity prescribed burning would be allowed on select cultural resource sites identified in the Cultural Resource report for the project.
- 9) Should any previously unrecorded cultural resources be encountered during implementation of this project, all work should immediately cease in that area and the District Archeologist be notified immediately. Work may resume after clearance by the District Archeologist.

Pesticide Application

All appropriate laws, policies, and regulations governing the use of pesticides, as required by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and the Forest Service Policy pertaining to pesticide-use, would be followed. Coordination with the appropriate County Agricultural commissioner would occur, and all required licenses and permits would be obtained prior to any pesticide application.

- 1) Compliance with the Clean Water Act would be demonstrated through the implementation of Best Management Practices (BMPs) certified by the state, and then monitoring to determine if the appropriate Central Valley Regional Water Control Board standards are met.
- 2) A directed spray away from conifer seedlings and oaks as well as the use of physical barriers would be required as needed to provide for protection where intermixed in targeted plants.
- 3) Each treatment unit would be posted with a clearly visible sign along likely access points that the unit has been treated with herbicide to avoid uninformed entry by public or other woods workers immediately after spraying has occurred. The specific herbicide would be identified, the treatment date specified, and the name and phone number of the appropriate contact would be identified.
- 4) A safety and spill plan would be developed prior to treatment annually, in years that herbicide treatments occur, to address site specific attributes of proposed treatment units, chemicals planned for use that year, and appropriate emergency contact information.

- 5) Application would cease when weather parameters exceed label requirements, in the event of precipitation, or a forecast of greater than a 70% chance of precipitation in the next 24 hours to reduce the chance of herbicide washing off targeted plants and into the soil.